

A new Species of *Ahlbergia* BRYK, 1946 from SE China

(Lepidoptera: Lycaenidae)

by

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Abstract: *Ahlbergia leechuanlungi* **spec. nov.** is described from SE China. It looks like *A. prodiga* JOHNSON, 1992 from NW Yunnan, but can be easily distinguished from the latter by the absence of bluish suffusion on upperside of both wings in ♂, the presence of an additional white streak in space 6 on underside of hindwing in both ♂ and ♀, and the stronger ♂ valvae, which resemble those of *Novosatsuma* JOHNSON, 1992.

Zusammenfassung: Als neu wird die Art *Ahlbergia leechuanlungi* **spec. nov.** beschrieben. Sie sieht der *A. prodiga* JOHNSON, 1992 von NW Yunnan sehr ähnlich, kann aber sehr leicht von dieser durch das Fehlen des Blauglanzes auf der Oberseite beider Flügel bei den ♂♂, das Vorhandensein eines zusätzlichen weißen Strichs in Zelle 6 auf der Hinterflügelunterseite in beiden Geschlechtern und durch eine kräftigere Valve, die der von *Novosatsuma* JOHNSON, 1992 nahe kommt, unterschieden werden.

Introduction

Ahlbergia prodiga JOHNSON, 1992 was originally described on the basis of one ♂ (holotype) and one ♀ (paratype), both from Bahand, NW. Yunnan. The type locality, "Bahand" is actually a Christian village near the current Gongshan country in Nujiang valley, now called Bai-han-luo, not in Yangtse valley or Mekong valley. Thus the species is hitherto only confined to the Nujiang valley. From his 2002 Expedition to the valleys of Nujiang and Dulongjiang, the primary author obtained two ♀♀ from Nujiang valley, both of which show similarities to *A. prodiga* JOHN. but differ from each other in ♀ genitalia. After a careful examination of photos of type specimens of *A. prodiga* JOHN., the primary author realized that there are probably two sibling species sympatric in Nujiang valley: one is *A. prodiga* JOHN., including the holotype ♂ and a ♀ specimen illustrated by H. HUANG (2003: 175, fig. 12); another is unnamed, including a ♀ specimen illustrated by H. HUANG (2003: 175, fig. 13). The allotype ♀ of *A. prodiga* JOHN. is uncertain in taxonomy because of its very worn condition, especially the lack of any scales in the postdiscal area of the hindwing underside, it may not belong to *A. prodiga* JOHN.

The difference between *A. prodiga* JOHN. and this unnamed species is as follows: 1. On the underside of hindwing, the costal white streak is much wider in *A. prodiga* JOHN. than in the unnamed

species; 2. On the underside of hindwing, the postdiscal area immediately outside of the discal line is suffused by blackish scales in *A. prodiga* JOHN., but is brownish and not densely powdered by blackish scales in the unnamed species, the discal line is not clearly marked in *prodiga*, but well marked by different ground colors on inner and outer sides in the unnamed species; 3. In genitalia, the signum of *A. prodiga* JOHN. is remarkably larger than in the unnamed species. Nevertheless, there is not enough evidence to name this species at present because of the scanty of material, especially the unknown ♂ specimens. There is only very small possibility that *A. prodiga* JOHN. exhibits very strong individual variation in external features and ♀ genitalia. New expedition will be made in the near future to Nujiang valley and this taxonomic problem will be solved hopefully.

However, there is a long series of specimens collected by various Chinese collectors from SE China showing many similarities to *A. prodiga* JOHN., which however were misidentified by most collectors as *Novosatsuma pratti* (LEECH, 1889). With the help of the secondary author, the primary author had the chance to dissect some specimens from Fujian. Thus a cooperation is presented here and the taxon from SE China is proved to be a distinct new taxon closely allied to *A. prodiga* JOHN. Judging from the constant difference in external features and remarkable difference in genitalia, it is reasonable to regard this new taxon from SE China as an independent species, because most species of *Ahlbergia* differ only slightly from their sibling species in ♂ and ♀ genitalia.

Systematic account of the *Ahlbergia prodiga* complex

1: *Ahlbergia prodiga* JOHNSON, 1992 (Colour plate 8, figs 1-4)

= *Ahlbergia prodiga* JOHNSON, 1992: 48 - only holotype ♂ (allotype ♀ uncertain, probably belonging to another species).

= *Ahlbergia* spec.: HUANG, 2003: 103 - ♀ (Qiqi, Nujiang).

Specimens examined: holotype ♂, Bahand, now referring to a village namely Bai-han-luo near Gongshan county in Nujiang valley, not Yangtse valley (BMNH, photos examined); 1 ♀, Qiqi, Nujiang valley (in coll. H. HUANG, examined)

Characters: 1. On underside of hindwing, the costal white streak is broad and remarkable, but restricted to space 7; 2. On underside of hindwing, the postdiscal area immediately outside of the discal line is suffused by blackish scales, the discal line is not clearly marked; 3. In ♀ genitalia, the signum is large; 4. In ♂ genitalia, the valvae are shorter with caudal extension sloping from the bilobed configuration to termini.

Remarks. The newly added ♀ specimen by H. HUANG from Nujiang valley agrees with the holotype of *A. prodiga* JOHN. much better than the allotype does. It shares all the wing characters with the holotype whereas the allotype of *A. prodiga* JOHN. lacks the postdiscal suffusion of blackish scales, which is performed in the holotype. The figures of the ♀ genitalia taken from the allotype of *A. prodiga* JOHN. are only hand drawings thus the authors can not check and compare the size of signum of the allotype with the newly added ♀ specimen. Thus the true identification of the allotype of *A. prodiga* JOHN. is still uncertain at present.

Distribution: Upper Nujiang valley, NW Yunnan only.

2: *Ahlbergia* sp.?

= *Ahlbergia prodiga*, HUANG, 2003: 103 - ♀ (Nidadan, Nujiang) (nec JOHNSON, 1992).

Specimens examined: 1 ♀, Nidadan, Nujiang valley (in coll. H. HUANG, examined)

Characters: 1. On underside of hindwing, the costal white streak is narrow and weak, restricted to space 7; 2. On underside of hindwing, the postdiscal area immediately outside of the discal line is brownish, not densely powdered by blackish scales, the discal line is well marked by different ground colors on inner and outer sides; 3. In ♀ genitalia, the signum is small; 4. ♂ genitalia unknown at present.

Remarks: There is small possibility that the allotype of *A. prodiga* JOHN. belongs to this species, however it is difficult to judge because of the lack of any scales in postdiscal area on underside of hindwing in that specimen.

Distribution: Upper Nujiang valley, NW Yunnan only.

Ahlbergia leechuanlungi spec. nov. (Colour plate 8, figs 5, 6)

=*Ahlbergia pratti*, TONG & al., 1993: 60, plate 55, figs. 569 (♀), 570 (♂), 571 (♀) (all from Zhejiang), nec. LEECH, 1889. Misidentification.

Characters: 1: On underside of hindwing, the costal white streak is broad and remarkable, with an extension to space 6; 2: On underside of hindwing, the postdiscal area immediately outside of the discal line is suffused by blackish scales, the discal line is not clearly marked; 3. In ♀ genitalia, the signum is large; 4. In ♂ genitalia, the valvae are stronger and longer, with caudal extension maintaining width at juncture with bilobed configuration for half of terminal length, then sloping to blunt termini.

Remarks: This species resembles *Novosatsuma pratti* in ♂ genitalia, but resembles *A. prodiga* JOHN. in ♀ genitalia.

Distribution: Fujian, Zhejiang, Jiangsu.

Description: *Ahlbergia leechuanlungi spec. nov.*

Diagnosis: This new species is only similar to *A. prodiga* JOHN. in external features, but can be easily distinguished from the latter by the following combination of characters:

1. Upperside of both wings is blackish, without any bluish suffusion, which is fully developed in *A. prodiga* JOHN.
2. Both sexes: An additional white streak is presented in space 6 just in continuation with the costal white streak in space 7 on underside of hindwing.
3. ♂ genitalia: valvae are much stronger than in *A. prodiga* JOHN., looking like those of *Novosatsuma* species in ventral view, with caudal extension maintaining width at juncture with bilobed configuration for half of terminal length, then sloping to blunt termini, whereas in of *A. prodiga* JOHN. the caudal extension of valvae is much shorter and less shouldered. (It should be noted that when the valvae are flattened and sealed into the slide, the shape of valvae is changed and becomes wider than in natural shape. The above comparison and description of valvae refer to the natural shape of valvae.)

This new species also looks like *Novosatsuma pratti* LEECH in external features, but can be easily distinguished from the latter by the very different female genitalia, in which the distal expansion of lamellae from plane of ductus bursae lateral margin exceeds the maximal width of ductus bursae. Such ♀ genital structure makes sure that *A. leechuanlungi spec. nov.* is a member of *Ahlbergia*, and not of *Novosatsuma*.

Discussion: The examination of ♀ genitalia proves *A. leechuanlungi spec. nov.* to be a member of *Ahlbergia*, and not of *Novosatsuma*. In his revision of “Elfin” butterflies, JOHNSON (1992) mentioned that there were specimens from “Foochow” in LEECH’s list but he did not locate these specimens. “Foochow” should refer to the now called Fuzhou area of Fujian province, SE China and if these specimens mentioned by LEECH existed they should belong to “*A. leechuanlungi spec. nov.*”, and not to *N. pratti*. In the original description of *N. pratti*, Ichang and Changyang were stated as the primary localities, both from Hubei, C. China (not Yunnan as JOHNSON stated, it should be noted that JOHNSON had very poor knowledge in Chinese geography and made many mistakes when translating the old Chinese geographical names into modern names in his work). One of the from Changyang was designated by JOHNSON as lectotype and its ♀ genitalia had been examined and illustrated. Thus the taxonomic difference between *A. leechuanlungi spec. nov.* and *N. pratti* is very clear and no confusion can be made in ♀ genitalia. In external features, *A. leechuanlungi spec. nov.* shows difference from *N. pratti* in having underside hindwing without white streaks in spaces 2 and 3. On the upperside of forewing, the ♂ brand of *A. leechuanlungi spec. nov.* is situated at same position and as long as in *A. prodiga* JOHN., but seems to be remarkably narrower than in *A. prodiga* JOHN., however only one ♂ of *A. prodiga* JOHN. has been ever known, thus this difference can not be affirmed at present. The whole hindwing is densely powdered with blackish scales on the underside and the discal line is only traceable, this character is only shared by the holotype of *A. prodiga* JOHN. In ♂ genitalia, the cornuti of *A. leechuanlungi spec. nov.* only bear very minute spines, whereas the figure of *A. prodiga* JOHN. published by JOHNSON shows the longer and perfect spines. However such difference in cornuti can not be affirmed at present because only one ♂ of *A. prodiga* JOHN. has been examined and the figure provided by JOHNSON is only a hand drawing. Nevertheless, the shape of ♂ valvae is so remarkably different between *A. prodiga* JOHN. and *A. leechuanlungi spec. nov.* that make the authors sure they are different species. Its resemblance to *Novosatsuma* species in ♂ genitalia confirms the suspicion that the separation between the genera *Ahlbergia*, *Novosatsuma* and *Cissatsuma* is not clear in ♂ genitalia and JOHNSON’s key to genera in ♂ genitalia does not work. So far only the examination of ♀ genitalia can make a stable generic classification for the “Elfin” butterflies.

Type data: holotype ♀, length of forewing: 15mm, Shun-chang County, Fujian, SE China, April 22, 2004, leg. Y.-C. CHEN (deposited in Entomological Museum, Institute of Zoology, Chinese Academy of Science, Beijing). Paratypes: 2 ♂♂, same data as holotype; 1 ♀, Jian-yang, Wu-yi-shan, Fujian, March 30, 1960, leg. Y.-R. ZHANG. (We only include the specimens in our hands to the type series, neglecting those of which we had seen photos only, but not in our hands.)

Etymology: The specific name is in memory of the late Prof. LEE CHUANG-LUNG (1910-2005), an outstanding explorer pioneer in butterfly research of the new China, whose career and stories in collecting butterflies encourage many Chinese to love and study butterflies including the authors of this paper.

Acknowledgement

The authors wish to express their hearty thanks to Mr. P. R. ACKERY and Mrs. K. GOODGER for the permission to use the photos of type specimens of *Ahlbergia prodiga* JOHN. taken by them in BMNH (The Natural History Museum, London).

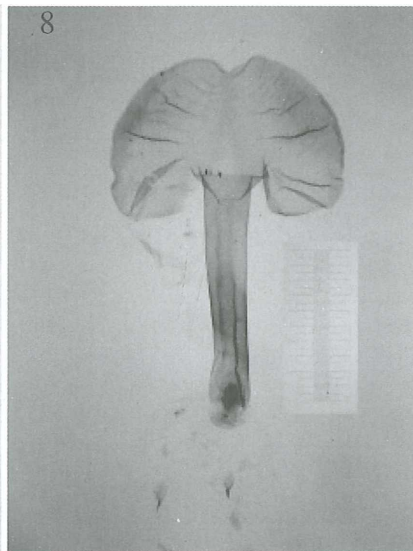
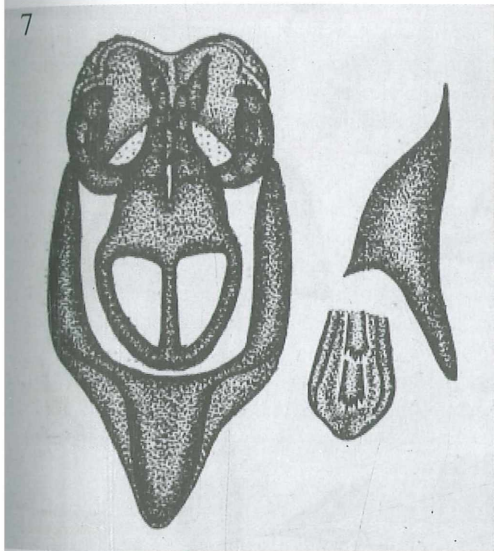
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Explanation of figures

Fig.7: *Ahlbergia prodiga* JOHNSON, 1992, ♂ genitalia consisting of whole genitalia in ventral view with aedeagus removed, of valva in lateral view and of enlarged tip of aedeagus in dorsal view to show cornuti (hand drawings, reproduced from JOHNSON, 1992: 106)

Fig.8: *Ahlbergia prodiga* JOHNSON, 1992, ♀ genitalia (photo of slide, taken from female illustrated as fig. 3) consisting of genital plates (lamella antevaginalis and lamella postvaginalis), ductus bursae and corpus bursae flattened in ventral view.



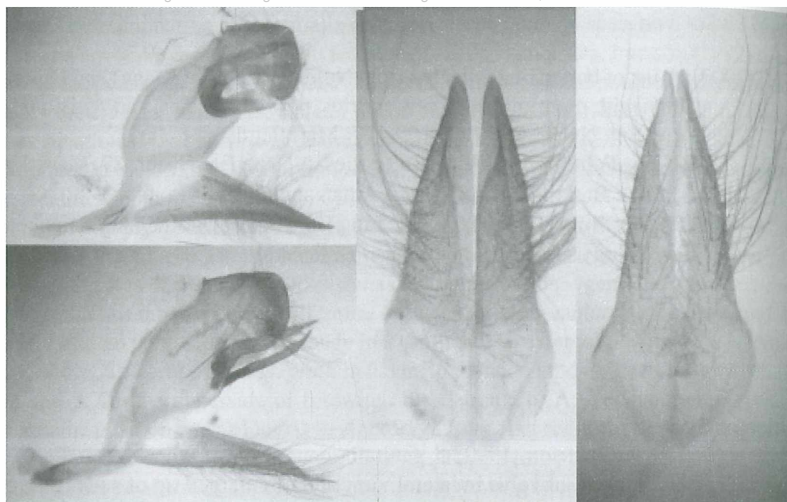


Fig.9: *Ahlbergia leechuanlungi* **spec. nov.**, ♂ genitalia (photo of genitalia in natural shape, taken from paratypes) consisting of the whole genitalia in lateral view with aedeagus removed, and of enlarged valvae in ventral view.

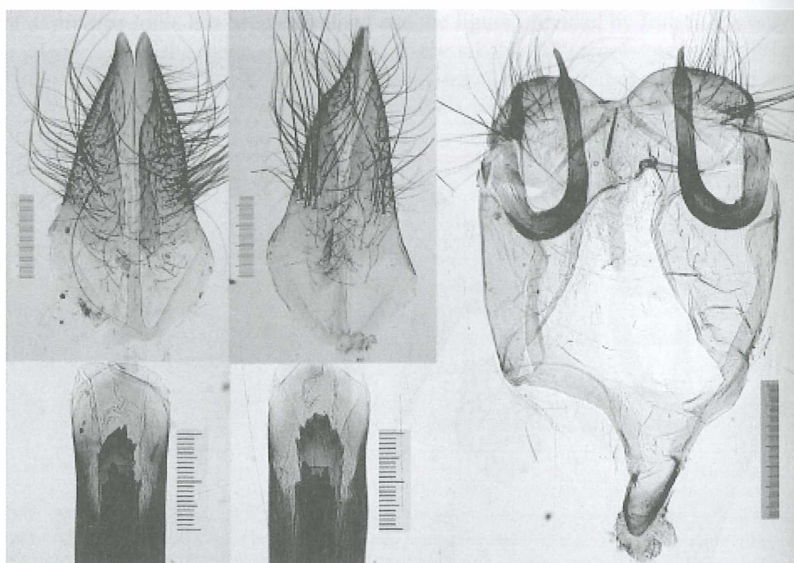


Fig.10: *Ahlbergia leechuanlungi* **spec. nov.**, ♂ genitalia (photo of slide, taken from paratypes) consisting of ring spread and flattened, of valvae flattened in ventral view, and of enlarged tips of aedeagus in dorsal view to show cornuti.

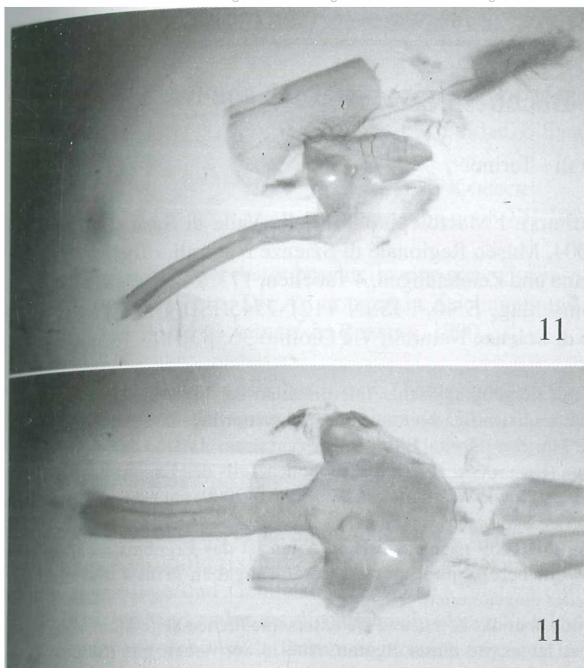
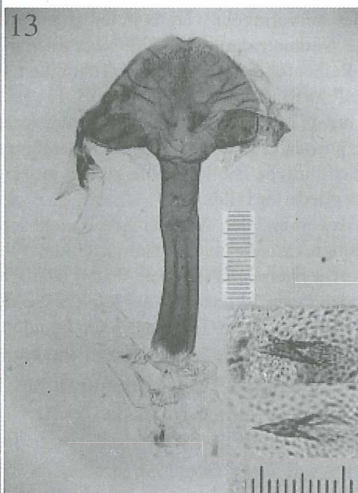
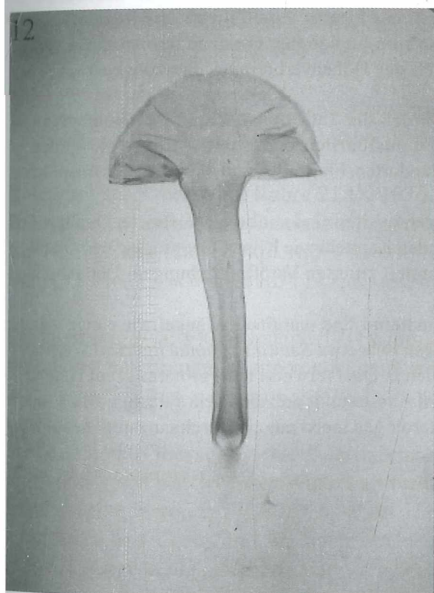


Fig.11: *Ahlbergia leechuanlungi* spec. nov., ♀ genitalia (photo of genitalia in natural shape, taken from holotype illustrated as fig. 6) consisting of the whole genitalia in lateral view and ventral view (noticing that the dorsal surface of caudal end of corpus bursae membranous).

Fig.12: *Ahlbergia leechuanlungi* spec. nov., ♀ genitalia (photo of slide, taken from holotype illustrated as fig. 6) consisting of genital plates (lamella antevaginalis and lamella postvaginalis), ductus bursae and corpus bursae flattened in ventral view, and of the enlarged signum.

Fig.13: *Ahlbergia leechuanlungi* spec. nov., ♀ genitalia (photo of slide, taken from paratype not illustrated) consisting of genital plates (lamella antevaginalis and lamella postvaginalis), ductus bursae and corpus bursae flattened in ventral view.



Farbtafel 9/ Colour plate 9

HUANG, H. & Y.-CH. CHEN: A new Species of *Ahlbergia* BRYK, 1946 from SE China (Lepidoptera: Lycaenidae). - *Atalanta* (Juli 2005) **36**(1/2): 161-167, Würzburg.

Fig.1: *Ahlbergia prodiga* JOHNSON, 1992, holotype ♂, upperside (length of forewing: 12mm, "Bahand", Nujiang valley, NW Yunnan).

Fig.2: *Ahlbergia prodiga* JOHNSON, 1992, holotype ♂, underside.

Fig.3: *Ahlbergia prodiga* JOHNSON, 1992, ♂, upperside (length of forewing: 15mm, Nidadan, Nujiang valley, NW Yunnan).

Fig.4: *Ahlbergia prodiga* JOHNSON, 1992, ♀, underside.

Fig.5: *Ahlbergia leechuanlungi* **spec. nov.**, paratype ♂, upperside (left half) and underside (right half) (length of forewing: 15mm, Shun-chang, Fujian, SE China).

Fig.6 *Ahlbergia leechuanlungi* **spec. nov.**, holotype ♀, upperside (left half) and underside (right half) (length of forewing: 15mm, Shun-chang, Fujian, SE China).

Farbtafel 9/ Colour plate 9

